**18ELP10**

**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**MSc DEGREE EXAMINATION MAY 2022**
(Second Semester)

Branch – **APPLIED ELECTRONICS**

**PROGRAMMABLE LOGIC CONTROLLER**

Time: Three Hours Maximum: 50 Marks

**SECTION-A (5 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (5 x 1 = 5)

1. Which of the following is most likely to be the voltage level used internally in a PLC, excluding the voltage levels that might occur during conditioning in output/input channels:
   (a) 5V (b) 24 V
   (c) 110 V (d) 240 V
2. When the program instructions LD X100, PLS M400 are used for a ladder rung, the internal relay M400 will:
   (a) Remain on even when the input to X100 ceases.
   (b) Remain closed unless there is a pulse input to X100.
   (c) Remain on for one program cycle when there is an input to X100.
   (d) Remain closed for one program cycle after an input to X100.
3. The program instruction list for a Telemecanique PLC is: L I0,0, = T0, L T0, = O0,0. When there is an input to I0,0 there is:
   (a) An output which is on for 6 s then off for 6 s.
   (b) An output which lasts for 6 s.
   (c) An output which starts after 6 s.
   (d) An output which is off for 6 s, then on for 6 s.
4. A single output device fails to turn on when the output LED is on. The voltage at the output is tested and found normal but the voltage at the device is found to be absent. The fault is:
   (a) Faulty wiring (b) A faulty output device.
   (c) A fault in the PLC. (d) A fault in the program
5. The standard form of HMI is
   (a) Human Machine interface (b) Human Master Interface
   (b) Human Main Interface (d) Human Main Internal

**SECTION - B (15 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Explain the Microprocessor controlled system.
OR
b Write the memory elements in a PLC system.

7 a List out the Instruction list.
OR
b Discuss about the Structured Text.

8 a Elucidate the Pulse Timers.
OR
b Explain the Sequencer.

9 a Write the fault finding.
OR
b Explain the valve sequencing.

**Cont...**

10 a Explain the SCADA Hardware systems.

OR

b Discuss about Remote Terminal Unit.

## SECTION -C (30 Marks)

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Explain the PLC Architecture.

OR

b What are the input devices? Explain it.

12 a Elucidate the Function Blocks.

OR

b Discuss about the Battery Backed Relays.

13 a Describe the Off Delay timers.

OR

b Explain the Forms of Counter.

14 a Discuss about the Safe systems.

OR

b Elucidate the commissioning.

15 a Explain the Communication Protocols.

OR

b Enumerate the HDLC.

Z-Z-Z END